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CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD COLORADO RIVER BASIN REGION

RESOLUTION NO. 99-056

ADOPTION OF FINDINGS OF MITIGATION AND MITIGATION MONITORING PROGRAM FOR THE EAGLE MOUNTAIN LANDFILL WASTE DISCHARGE REQUIREMENTS

The California Regional Water Quality Control Board, Colorado River Basin Region (hereinafter Regional Board), finds:

As a Responsible Agency, the Regional Board is required to make findings of mitigation or overriding consideration and adopt a mitigation monitoring program only for those portions of the Project that are being approved by the Responsible Agency and only as to those mitigation measures that are within the Responsible Agency's jurisdiction.

The jurisdiction of the Regional Board is limited to regulating the impacts of water quality and the beneficial uses of water by the discharge of wastes. Findings in Waste Discharge Requirements, Order No. 99-061 are limited to matters within the Regional Board's jurisdiction.

The mitigation, findings, and supportive evidence are contingent upon the project's owners/operators constructing and operating the project to comply with the waste discharge requirements adopted by the Regional Water Quality Control Board. The design measures hereto described are those proposed by the owner/operator to comply with the Regional Water Quality Control Board's requirements.

I. PROJECT BACKGROUND AND DESCRIPTION SUMMARY

The Project background and description are contained in the Waste Discharge Requirements, Order No. 99-061, which are being considered by the Regional Board along with this Resolution.

An initial study for the Project initially proposed by the dischargers, was prepared by the County of Riverside. A Notice of Preparation (NOP) for an Environmental Impact Report was distributed on May 6, 1995 to Federal and State agencies, local responsible and trustee agencies, the State Clearinghouse, organizations, and interested individuals. Distribution of the NOP assisted in the identification and determination of the range and scope of environmental issues of concern on the proposed Project. Relevant environmental issues were included in the Environmental Impact Report/Environmental Impact Statement (EIR/EIS). Comments received during the NOP distribution were addressed in a Draft EIR/EIS. The Draft EIR/EIS was circulated for public review in July 1996. Following public review and comments, the County of Riverside, as the lead agency, certified the Final Environmental Impact Report/Environmental Impact Statement (FEIR/EIS) on September 9, 1997.

The contents of the Draft EIR/EIS, the response to comments and other related attachments including the Mitigation Monitoring Program compose the FIER/EIS for the Eagle Mountain Landfill. That document is incorporated into this Resolution.

II. THE RECORD

The California Code of Regulations, Title 14, Section 15091(b) requires that the Responsible Agency's findings be supported by substantial evidence in the record. Accordingly, the Responsible Agency's record consists of the following:

DRAFT

- A. Documentary and oral evidence, testimony, and staff comments and responses received and reviewed by the Regional Board during its technical workshop held November 17, 1993, and the public hearing on May 16 and 17, 1994, and on July 28 and 29, 1999 on the Eagle Mountain Landfill as described in Waste Discharge Requirements, Order No. 99-061. The Report of Waste Discharge (ROWD) dated December 17, 1992, and all documents in the Regional Board's files for this facility including, but not limited to those listed below, are also part of the record.
- B. Riverside County's Resolution No. 97-236, "Adopting/Approving Comprehensive General Plan Amendment Nos. 402 and 405, Specific Plan Nos. 305 and 306, Change of Zone Case Nos. 6249 and 6253, Development Agreement No. 64, Revised Reclamation Plan Permit No. 158, Tentative Tract Map No. 28217, and the California Environmental Quality Act Findings Made In Connection Therewith.
- C. Reports and other written information including the following documents by Geosyntec, Consultants for the Eagle Mountain Landfill:
1. A Report of Waste Discharge (ROWD) in eight (8) volumes, dated December 17, 1992.
 2. Conceptual Plan for Unsaturated Zone Gas Monitoring (UZGM), Supplement to the ROWD, dated March 10, 1993.
 3. Supplemental Volume 1 (SV1) to the ROWD, dated June 10, 1993.
 4. Supplemental Volumes 2A and 2B (SV2) to the ROWD, dated December 1993.
 5. Summary of Information on Absence of Holocene Fault Displacement, dated November 4, 1993.
 6. Supplemental Volumes 3A and 3B (SV3) to the ROWD, dated December 16, 1997.
 7. A response document dated March 25, 1999 concerning:
 - Time-of-Travel for landfill gas, and
 - Rationale for monitoring well screen length and depth.
- D. Matters of common knowledge to the Responsible Agency that they consider, such as:
1. The Water Quality Control Plan, Colorado River Basin Region adopted was by the Regional Water Quality Control Board, Colorado River Basin Region on November 17, 1993.
 2. The Porter-Cologne Water Quality Control Act, California Water Code Section 13000 et. seq.
 3. Title 27, California Code of Regulations, Division 2, Section 20005, et. seq. governing the State Water Resources Control Board/California Integrated Waste Management Board, and the nine Regional Water Quality Control Boards.
 4. Criteria for Municipal Solid Waste Landfills, 40 Code of Federal Regulations, Part 258.
 5. Municipal Solid Waste Landfill Criteria Subtitle "D" of the Resources Conservation and Recovery Act. 42 United States Code 6901, et. seq. 6941.
 6. The State Water Resources Control Board's Resolution No. WQ 93-005, the State Water Resources Control Board's Policy for Regulations of Discharge of Municipal Solid Waste, implementing the Federal Subtitle "D" Regulations in California.
 7. The California Environmental Quality Act (CEQA), California Public Resources Code, Section 21000, et. seq., and the State CEQA Guidelines implementing the Act, Title 14, California Code of Regulations, Section 15000 et. seq.
 8. Other formally adopted policies and ordinances of the Regional Board and State Board.
- E. Documents and other material which constitute this record are located at the office of the California Regional Water Quality Control Board, Colorado River Basin Region, 73-720 Fred Waring, Suite 100, Palm Desert, Ca 92260. The Regional Board's Executive Officer is the custodian of the record.

DRAFT

III. FINDINGS FOR PROJECT IMPACTS

The following section contains the findings required by Section 21081 of the California Public Resources Code. These findings are organized by resources issue area, with impacts that result from the portion of the Project to be mandated in Waste Discharge Requirements Order No. 99-061. The impacts were identified in the January 1997 Final Environmental Impact Report/Environmental Impact Statement (FEIR/EIS) for the Eagle Mountain Landfill. The following outline follows the FEIR/EIS of January 1997:

Groundwater Quality and Use

Public Health and Safety

Surface Water Drainage/Flooding

Geology and Mineral Resources

Each significant impact of the portion of the Project being mandated by the Waste Discharge Requirements, Order No. 99-061, is set forth below, followed by recommended mitigation measures, a specific finding for the impact, and the supporting evidence.

Groundwater Quality and Use

1. Potential Impact

The Project has the potential for pollution of groundwater due to migration of leachate or Landfill gas.

Mitigation (See Appendix A of this Resolution for the complete wording of the following Prohibitions, Specifications, and provisions):

- a. Discharge Prohibitions 1, 3, and 4
- b. Discharge Specifications 3, 4, 5, 6, 7, 8, 11, 12, 13, 14, 15, 23, 24, 25, 26, 27, 31, 32, 33, 36, 42, 44, 50, 54, 55, and 60
- c. Provision 24.

Findings

Changes or alterations have been required in, or incorporated into, the Project, which avoid or substantially lessen the significant environmental effects as identified above and in the FEIR/EIS. These are set forth in the mitigation measures above and/or in the design of the Project.

Supportive Evidence

Leachate and Gas

As mandated in the Waste Discharge Requirements, Board Order No. 99-061, leachate and gas containment, collection and detection monitoring systems are part of the design criteria required by State and Federal regulations.

Leachate – The possibility of leachate generated due to precipitation at the site is minimal due to the arid climate. The average rainfall is four inches per year and the evaporation rate is about 150 inches per year. A surface water/storm water system is designed to prevent storm water contact with the waste. To reduce leachate generated within the waste, several measures will be taken. These measures include: minimizing the size of the working face to not more than two acres to reduce the area of waste exposed at any one time to precipitation, covering the waste daily to reduce direct waste exposure to precipitation,

DRAFT

recycling the waste (AB 939 requires mandatory 50 percent recycling of residential solid waste by the year 2000), processing the waste at material recovery facilities/transfer stations (MRFs/TSSs), and inspecting the waste on site for prohibited materials. Redundant containment and detection monitoring systems are designed to contain and monitor any leachate generated at the Landfill. The entire Landfill including side slopes, benches and ridges, and base are lined with a composite liner that meets State and Federal requirements.

The side slopes and benches and ridges are sloped to direct any leachate generated toward the base of the Landfill. The base of the Landfill is designed to have a primary leachate collection removal system (LCRS), underlain by a primary composite liner. The primary containment composite liner consists of:

- a. A 16-oz./yd² nonwoven needle punch geotextile.
- b. An 80-mil textured (both sides) high density polyethylene (HDPE) geomembrane.
- c. A two-foot thick soil liner with low permeability of $K \leq 1 \times 10^{-9}$ cm/s.

Leachate directed to the base of the Landfill will be contained in this primary composite liner and directed via gravity (4 percent slope) through a primary porous granular collection system to primary sumps. Leachate collected in the sumps will be pumped (using submersible pumps through riser pipes) into a leachate management system and then transported to an approved wastewater treatment plant.

In addition, a secondary containment and liquid collection system is designed for the base area of the Landfill. This layer consists of an unsaturated zone liquid monitoring layer, also referred to as a secondary LCRS, underlain by a secondary composite liner system. The secondary composite liner consists of:

- a. A 16-oz./yd² nonwoven needle punch geotextile.
- b. An 80-mil textured (both sides) HDPE geomembrane.
- c. A geosynthetic clay liner (GCL) with hydraulic conductivity of $K \leq 1 \times 10^{-9}$ cm/s.

This secondary containment system and liquid collection system is designed to contain and direct any leachate that passes through the first composite liner system. As in the primary LCRS, leachate will be directed by gravity through a porous granular collection system to secondary sumps. Leachate collected in the secondary sumps will be pumped (using submersible pumps through riser pipes) into the leachate management system and then transported to an approved wastewater treatment plant. The secondary sumps are used to detect the presence of leachate if the primary containment system fails.

To monitor water quality, the groundwater monitoring system designed for the Landfill to detect and monitor the quality of the groundwater underneath the Landfill, consists of 27 downgradient point-of-compliance monitoring wells and nine upgradient background monitoring wells. As mandated under Monitoring and Reporting Program No. 99-061, the groundwater shall be monitored for a specific list of inorganic and organic constituents and all detected releases to the groundwater shall be reported to the Regional Board.

Gas – Landfill gas (LFG) is composed primarily of methane and carbon dioxide, which are the natural products of microbial decomposition of Landfill waste. LFG can also contain forms of volatile organic compounds (VOCs) disposed in the Landfill in small quantities (e.g. small spent containers of home cleaning fluids, solvents, paint and thinners). Recycling, and waste checking at the material recovery facilities, and spot-checking at the Landfill, will reduce the quantities of household waste releasing VOCs. In addition, several design measures will be implemented at the Landfill to address with gas generation.

DRAFT

These design measures include:

1. Installation of approximately 1,000 vertical gas extraction wells within the Landfill. This system is designed to extract gas from the Landfill under a small vacuum, convey the gas by gas collection headers and pipelines to flare stations. Gas condensate formed in header pipes will be collected and treated as leachate.
2. Installation of permanent gas monitoring probes around the perimeter of the Landfill as well as monitoring of ambient air, and on-site structures for the presence of Landfill gas. Emissions from the surface of the Landfill will be monitored periodically to ensure that emissions from the Landfill surface are within State and federal guidelines established by the SCAQMD. Detection of potential odors associated with the release of LFG and daily landfilling operations will also be monitored on a regular basis.
3. Installation of an unsaturated zone gas monitoring system (UZGMS) beneath the Landfill. The UZGMS will consist of approximately 200 gas probes installed and spaced every ten acres to locally monitor unsaturated zone gas quality.

The primary and secondary composite liners, primary and secondary leachate collection and removal system, plus active gas removal systems and gas monitoring systems are designed to **reduce** any significant impact to the groundwater.

2. Potential Impact

The Project creates potential for water quality degradation from the Landfill after its closure.

Mitigation (See Appendix A of this Resolution for complete wording of the following Specifications and Provisions):

- a. Discharge Specifications 3, 4, 5, 12, 13, 14, 15, 23, 24, 25, 27, 31, 32, 33, 36, 44, 54, 64, and 65
- b. Provisions 24 and 38

Findings

Changes or alterations have been required in, or incorporated into, the Project, which avoid or substantially lessen the significant environmental effects as identified above and in the FEIR/EIS. These are set forth in the mitigation measures above and/or in the design of the Project.

Supportive Evidence

As mandated in Waste Discharge Requirements, Board Order No. 99-061, the Landfill is designed to prevent water quality degradation during and after the closure of the Landfill. The primary and secondary composite liner systems, primary and secondary LCRS, gas extraction and monitoring systems (within the waste, around the perimeter, and underneath the Landfill) plus daily, intermediate and final cover systems will reduce water impacts to a level of insignificance. In addition, Monitoring and Reporting Program No. 99-061 requires post-closure monitoring of all 36 groundwater monitoring wells and all 9 surface water monitoring points for as long as there is a threat to water quality.

Public Health and Safety

3. Potential Impact

The Project has the potential for subsurface fires at the Landfill due to the presence of combustible materials.

DRAFT

Mitigation (See Appendix A of this Resolution for the complete wording of the following Prohibitions and Specifications)

- a. Discharge Prohibition 4.
- b. Discharge Specifications 3 and 25 (a)(1, 2, and 3)

Findings

Changes or alterations have been required in, or incorporated into, the Project, which avoid or substantially lessen the significant environmental effects as identified above and in the FEIR/EIS. These are set forth in the mitigation measures above and/or in the design of the Project.

Supportive Evidence

Subsurface Landfill fires can occur if combustible materials within the Landfill mass are heated to a critical temperature, either through biological decomposition or chemical oxidation. The ignition characteristics and subsequent propagation characteristics of subsurface Landfill fires will depend upon waste composition, moisture content, oxygen availability, and ambient pressure. A continuous source of oxygen would be necessary for the decomposition/oxidation process; oxidation of the refuse materials can generate heat to the point of combustion.

Mitigation measures will be implemented to prevent and/or extinguish Landfill fires due to combustible materials. All refuse accepted at the Landfill from outside the Chuckwalla Valley will be screened at the MRFs/TSSs, and all the combustible materials will be removed prior to shipment to the Landfill. During compaction of waste prior to loading for transport, voids or air spaces capable of supplying oxygen to support combustion would be substantially reduced. There will be a load checking/screening at the Landfill to screen locally delivered waste for prohibited waste, including smoldering waste. Smoldering or burning incoming waste will be isolated and thoroughly extinguished prior to disposal. An active gas extraction system and Landfill gas management system will be implemented to contain, remove and dispose of Landfill gas generated by the decomposition of waste within the Landfill. A fire prevention plan and an emergency response plan will be developed in coordination with the Riverside County Fire Department, and will be implemented as an integral component of the Landfill. This prevention and emergency response plan will detail specific and appropriate actions for preventing fires as well as action to be taken in the event of refuse load fire, including isolating any hot loads before refuse is landfilled.

Surface Water Drainage/Flooding

4. Potential Impact

The Project has the potential for increased leachate and adverse effects on groundwater if storm water infiltrates the Landfill.

Mitigation (See Appendix A of this Resolution for the complete wording of the following Specifications)

- a. Discharge Specifications 3, 4, 5, 8, 11(a), 12, 13, 14, 15, 18, 19, 20, 21, 22, 23, 24, 27, 29, 30, 32, 33, 34, and 36.

DRAFT

Findings

Changes or alterations have been required in, or incorporated into, the Project, which avoid or substantially lessen the significant environmental effects as identified above and in the FEIR/EIS. These are set forth in the mitigation measures above and/or in the design of the Project.

Supportive Evidence

The Eagle Mountain Landfill site is located in an area that has an average of four inches or less of rainfall per year, and the rate of evaporation is about 150 inches per year. The main storm water event that would have the possibility of penetrating the waste would be the 100-year, 1-hour, 100-year, 3-hours, and 100-year, 24-hours storm events. Surface water management design for the Eagle Mountain Landfill has taken these severe infrequent storm events into account.

The Eagle Mountain Landfill will be constructed in four contiguous phases, with approximately 13 sequences and 75 subphases. The subphases of the construction operation range from 10 to 40 acres. As the construction of a subphase is completed, landfilling will begin. A subphase surface water management system (temporary system) will be constructed to accommodate storm water events. This system includes temporary drainage ditches, temporary detention basins, erosion and sediment control features will be constructed around the upslope perimeter of each working area of the Landfill to divert storm water flows around and away from the fill area as filling occurs. Each working area will be covered (daily cover) with six inches of compacted soil, or alternative material placed over the waste during or at the end of each working day. As construction and landfilling continues, any area of the Landfill that has waste and that will be inactive for 180 days will be covered (intermediate cover) with a minimum 12-inch compacted soil, or equivalent. Intermediate covers will have side slopes of 3H:1V, or less with sloping benches to divert surface runoff into perimeter drainage ditches north and south of the Landfill.

The Eagle Mountain Landfill will have a composite final cover sloped at no steeper than 3H:1V. The final cover system will be progressively installed as subphase areas reach final grade. Permanent surface water management systems will be constructed to direct storm water away from the Landfill footprint. Nine surface water monitoring points will be constructed to monitor surface water quality. In the event of any storm water infiltration into the waste, the containment systems discussed previously will be able to mitigate such releases. Monitoring and Reporting Program No. 99-061 requires groundwater monitoring and reporting at the Eagle Mountain Landfill. Monitoring and Reporting Program No. 99-061 requires the discharger to immediately telephone the Regional Board if a release is discovered, and submit a written report within seven days that includes a proposal for corrective measures.

5. Potential Impact.

The Project has the potential for contamination of runoff by storm water contact with refuse in Landfill operational areas.

Mitigation (See Appendix A of this Resolution for complete working of the following specifications.

- a. Discharge Specifications 3, 27, 29, 30, 31, 32, 33, 34, and 36.

Findings

Changes or alterations have been required in, or incorporated into, the Project, which avoid or substantially lessen the significant environmental effects as identified above and in the

DRAFT

FEIR/EIS. These are set forth in the mitigation measures above and/or in the design of the Project.

Supportive Evidence

Two scenarios are considered. The first one is precipitation that falls on portions of the Eagle Mountain Landfill other than the working face, or originates from the drainage basins of Eagle Creek and Bald Eagle Creek after a storm event, and does not come in contact with the waste (noncontact water). This noncontact water will be controlled via surface water management system and three detention basins. The surface water management system and detention basins will divert the flows away from the Landfill and two creeks into the east bowl of the East Pit or into a natural downstream water course.

The second scenario is that precipitation falls on the working face of Eagle Mountain Landfill and comes in contact with waste (contact water). This contact water would be limited to contact with waste only at the working face of the Landfill during working hours and will be treated as leachate. The working face of the Landfill is limited to less than two acres of operation, minimizing exposure of waste. Containment systems, gas extraction, LCRS systems and monitoring systems will prevent or mitigate impact to groundwater, by precipitation onto the working face.

6. Potential Impact

Flooding, erosion and effects on biological resources from discharge of storm waters collected from around the Landfill.

Mitigation (See Appendix A of this Resolution for complete wording of the following specifications)

- a. Discharge Specifications 3, 7, 8, 11(a), 27, 29, 30, 31, 32, 33 and 34.

Findings

Changes or alterations have been required in, or incorporated into, the Project, which avoid or substantially lessen the significant environmental effects as identified above and in the FEIR/EIS. These are set forth in the mitigation measures above and/or in the design of the Project.

Supportive Evidence

The site drainage system has been designed and will be constructed to convey and discharge surface water into natural drainage courses via energy dissipating structures, which will reduce peak flows into the drainages to pre-mining conditions, thus mitigating the potential for erosion impacts or damage to resources. The total watershed area, in terms of size, would be largely unchanged from pre-project to post-landfill conditions, and the total flow generated from a given size storm would remain unchanged. The reclamation of the East Pit by the disposal of solid wastes would establish direct drainage patterns consistent with those that existed prior to mining operations. Runoff currently flows into the East Pit and either percolates into the ground or evaporates. Runoff from the project would flow in a combination of engineered drainage structures and natural drainage courses to the alluvial areas east of the Landfill where it would percolate or evaporate. Potential impacts to surface drainage would be avoided due to the incorporation of the project design features, which include a design plan consistent with the requirements of the Riverside County Flood Control & Water Conservation District and applicable state and federal landfill regulations. All permanent detention basins for the Landfill will be designed to handle a 500-year storm event. After significant rainfall events, all ditches and detention ponds will be inspected and periodically cleaned out. In addition, the final landfill slope will be a minimum of 3 percent.

DRAFT

Geology and Mineral Resources

7. Potential Impact

Potentially expansive soils may occur in the fine tailing storage lagoons and in areas underlain by alluvial material.

Mitigation (See Appendix A of this Resolution for complete wording of the following Specifications)

- a. Discharge Specifications 3, 46(b)(9), 46(e)(3), 46(g)(1)(h) and 47.

Findings

Changes or alterations have been required in, or incorporated into, the Project, which avoid or substantially lessen the significant environmental effects as identified above and in the FEIR/EIS. These are set forth in the mitigation measures above and/or in the design of the Project.

Supportive Evidence

The dischargers are required under Waste Discharge Requirements Order No. 99-061, to submit detailed "Final Construction Design Plans and Specifications" to the Regional Board prior to construction. The plan requires material used for Landfill construction be evaluated among other things for shear strength and expansion by a California registered engineer or certified engineering geologist. Fine tailing soil used for Landfill construction will be evaluated by a California registered geotechnical engineer and/or a certified engineering geologist, and areas subject to expansive soil will be subject to remedial grading as needed.

As part of the Specifications in Board Order No. 99-061, the discharger is required to maintain safety factors of 1.35 and 1.5 for interim slopes and final slopes, respectively. Also, Specifications in Board Order No. 99-061 require that Construction Quality Control-Construction Quality Assurance (CQC-CQA) plans be implemented during the Eagle Mountain Landfill construction. These plans include:

- a. CQC-CQA plans to be implemented by an independent engineering firm that is not owned in whole or in part by the dischargers.
- b. CQC-CQA implemented by the contractor or manufacturer. All materials and workmanship shall be tested in accordance with the quality control-quality assurance plan. All tests may be observed by the CQC-CQA firm (independent firm), and all test results shall be submitted to the CQC-CQA firm for review and approval.
- c. CQC-CQA plans by the discharger to control all aspects of the Eagle Mountain Landfill construction. The discharger is required to periodically submit all observations and test results to the Regional Board's Executive Officer.

8. Potential Impact

The Project may create instability of manufactured slopes in bedrock and alluvial areas of the East Pit.

Mitigation (See Appendix A of this Resolution for complete wording of the following Specifications)

- a. Discharge Specifications 3, 46(b)(1,2,3 and 4), 46(e), 46(g)(1)(d, e, f, g and h), 46(g)(2) and 47.

DRAFT

Findings

Changes or alterations have been required in, or incorporated into, the Project, which avoid or substantially lessen the significant environmental effects as identified above and in the FEIR/EIS. These are set forth in the mitigation measures above and/or in the design of the Project.

Supportive Evidence

Extensive slope stability analyses were performed by the discharger for all Landfill slopes conditions. Waste Discharge Requirements, Board Order No. 99-061, requires specific conditions for different phases of construction. Under Board Order No. 99-061, a "Final Construction Design Plans and Specifications" document will be submitted to the Regional Board's Executive Officer for review and approval 120 days prior to initiation of construction of each subphase of the Eagle Mountain Landfill. The document will include Construction Quality Control-Construction Quality Assurance (CQC-CQA) plans. Under these plans, as grading for the Landfill occurs, a California registered geotechnical engineer and/or a certified engineering geologist will determine safe slope angles and maintain slopes within this range with flattening of slopes or construction of fill buttresses as needed. The slope angle design will be part of the final design submitted in final construction design plans and specifications.

All significant changes as specified in Specification 46(g) of Board Order No. 99-061 will be conditional upon the Regional Board's Executive Officer's approval. The California registered geotechnical engineer and/or certified engineering geologist will certify that the liner system is placed at safe slope angles.

9. Potential Impact

The Project has the potential for settlement in waste rock dumps northeast of the East Pit and loose alluvium in the eastern Project area.

Mitigation (See Appendix A of this Resolution for complete wording of the following Specifications)

- a. Discharge Specifications 3 and 47.

Findings

Changes or alterations have been required in, or incorporated into the Project, which avoid or substantially lessen the significant environmental effects as identified above and in the FEIR/EIS. These are set forth in the mitigation measures above and/or in the design of the Project.

Supportive Evidence

The areas that have potential for excessive settlement will be excavated or compacted prior to liner system construction. The compaction will be at least 90 percent relative compaction in accordance with ASTM Standards.

10. Potential Impact

The Project will create potential slope failure and dislodgment of loose materials from existing manufactured slopes in the strong seismic event.

Mitigation (See Appendix A of this Resolution for complete wording of the following Specifications)

- a. Discharge Specifications 3, 19, 20, 46(a), 46(b)(2, 3, 4, and 5), 46(d), 46(e)(3 and 4), and 46(g)(1)(d, f, g, and h).

DRAFT

Findings

Changes or alterations have been required in, or incorporated into the Project, which avoid or substantially lessen the significant environmental effects as identified above and in the FEIR/EIS. These are set forth in the mitigation measures above and or in the design of the Project.

Supportive Evidence

The dischargers have performed slope stability analyses for all slope conditions expected to be encountered on the Eagle Mountain Landfill project. These analyses meet the California Code of Regulations, Title 27, Section 20005, et. seq., (Title 27) and 40 Code of Federal regulations, Part 258 (Subtitle D) regulations. Included in these analyses are both static and seismic analyses for slope stability. Board Order No. 99-061 has specific requirements that shall be met during the construction of the Eagle Mountain Landfill. Under specifications in Board Order No. 99-061, the stability of slopes shall be maintained during construction in accordance with Construction Quality Control-Construction Quality Assurance (CQC-CQA) plans. As part of the construction plan, loose rock and materials will be progressively scaled from benches above the working face of the Landfill. All natural and man-made slope conditions have been analyzed for seismic stability using the Subtitle D design event and conservative interface shear strength values. To ensure that the engineered slopes constructed during facility development achieve the desired factors of safety, minimum interface shear strength values shall be specified in the construction documents. The potential for seismically induced settlement of fill placed during previous mining activities and of loose alluvium will be mitigated through design and construction. Any previous mining fill or loose alluvium that would provide inadequate support for overlying facilities shall be removed and replaced with compacted fill prior to the construction of the facilities.

11. Potential Impact

The Project has the potential to be affected by ground shaking, fault rupture, liquefaction, slope instability, and settlement in a strong seismic event.

Mitigation (See Appendix A of this Resolution for complete wording of the following Specifications)

- a. Discharge Specifications 3, 19, and 20, 46(a), 46(b)(2, 3, 4, and 5), 46(d), 46(e)(3 and 4), and 46(g)(1)(d, f, g, and h).

Findings

Changes or alterations have been required in, or incorporated into the Project, which avoid or substantially lessen the significant environmental effects as identified above and in the FEIR/EIS. These are set forth in the mitigation measures above and or in the design of the Project.

Supportive Evidence

California Title 27 and the Federal Subtitle D regulations require that Class III non-hazardous waste management facilities be designed to withstand the maximum probable earthquake (MPE) without damage to the foundation or to the structures which control leachate, surface drainage, or erosion, or gas. The dischargers have submitted seismicity analyses that meets these and other related regulations in Title 27 and Subtitle D. Included in the seismicity study evaluation and analyses (fully explained in the ROWD) are the following:

The potential for seismically-induced strong ground shaking at the site was evaluated using a probabilistic seismic hazard assessment. The probabilistic assessment considered the contributions to the site seismicity from all active and potentially active faults. Impacts associated with strong ground shaking will be mitigated by designing the Landfill

DRAFT

containment systems, LCRSs and gas extraction systems, to withstand a magnitude 6.5 event located five miles from the site, generating an acceleration of 0.56g at the site. This event, as required by Subtitle D, is expected to occur at this site once every 2,375 years. There are no known Holocene faults (faults that have had surface displacement within the last 11,000 years) within 200 feet of the Eagle Mountain Landfill as required by Title 27. The liner system is also designed to withstand an 8.0 magnitude earthquake on the San Andreas fault at its closest location to the site (33 miles away).

Depth to groundwater from the base of the Landfill ranges from 100 to 300 feet. Analyses of liquefaction potential indicate that liquefaction will not occur at the Eagle Mountain Landfill due to seismic events.

The potential for seismic slope instability will be mitigated through several design and construction measures. All long-term natural and man-made slope conditions have been analyzed for seismic stability using Subtitle D design event and interface shear strength values. Acceptable factors of safety against failure were achieved. Critical slopes were also evaluated for performance for MPE event. To ensure that the engineered slopes constructed during Landfill development achieve the desired factors of safety, minimum interface shear strength values shall be specified in the construction documents.

The potential for seismically induced settlement of fill placed during previous mining activities and of loose alluvium will be mitigated through design and construction. Any previous mining fill or loose alluvium that would provide inadequate support for overlying facilities will be removed and replaced with compacted fill prior to the construction of the facilities.

Title 27 states that the discharger, in lieu of achieving a factor of safety of 1.5 under seismic conditions, can utilize a more rigorous analytical method that provides a quantified estimate of the magnitude of movements in the design earthquake. Analytical studies that have been done for the Eagle Mountain Landfill indicates a displacement of 6 to 12 inches during the design earthquake. This amount of movement is accommodated in the design of the liner system, LCRS system and gas system without jeopardizing the integrity of these systems.

IV. CEQA GENERAL FINDINGS

- A. The Board finds that changes or alterations have been incorporated into the Project to mitigate or avoid significant impacts. These changes or alterations include mitigation measures and Project modifications outlined herein and set forth in more detail in the January 1997 FEIR/EIS.
- B. The Board finds that the Project as approved includes an appropriate Mitigation Monitoring Program. This Mitigation Monitoring Program ensures that measures that avoid or lessen the significant Project impacts, as required by CEQA and the State CEQA Guidelines will be implemented as described.

V. MITIGATION MONITORING PROGRAM

Section 21081.6 of the Public Resources Code requires that when a public agency is making the findings required by State CEQA Guidelines Section 15901(a)(1), codified as Section 21081(a) of the Public Resources Code, the public agency shall adopt a reporting or monitoring program for the changes to the proposed Project which it has adopted or made a condition of approval, in order to mitigate or avoid significant effects on the environment.

- A. Compliance with approved mitigation measures is to be achieved through two primary methods. Both methods integrate mitigation monitoring into existing processes, as encouraged by CEQA.

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- The Regional Board will include the mitigation measures in the Waste Discharge Requirements, Order No. 99-061, and will direct staff to oversee the implementation of mitigation measures at the Eagle Mountain Landfill.
- The Regional Board will direct staff to monitor the effect of mitigation measures through inspections and review of self-monitoring and reporting programs, as indicated in the Self-Monitoring and Reporting Program No. 99-061, and revisions thereto, Eagle Mountain Status Report, and Project oversight.

THEREFORE, BE IT RESOLVED, that the Regional Board hereby adopts findings of mitigation and a mitigation monitoring program, as described herein, for Eagle Mountain Landfill; and be it

FURTHER RESOLVED, that the Regional Board certifies that compliance with the mitigation monitoring program is adequate to ensure the implementation of the mitigation measures described herein.

I, Philip A. Gruenberg, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of a Resolution adopted by the California Regional Water Quality Control Board, Colorado River Basin Region on _____.

Executive Officer